

@ AUG 30th (Feed back)
on these plans

M/053/002

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**LEEDS SILVER RECLAMATION SITE
LEEDS, UTAH**

WORK PLAN

**VALUE ENGINEERING, CONSOLIDATION, AND
DEWATERING**

PREPARED FOR
U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18TH STREET, SUITE 500
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PREPARED BY
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Leeds Silver Reclamation Site, Leeds, Utah

Work Plan

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Leeds Silver Reclamation Site, Leeds, Utah

Work Plan - Value Engineering, Consolidation, and Dewatering

TASK ONE - VALUE ENGINEERING REPORT DEVELOPMENT

TASK ONE WORK OBJECTIVES: The Bureau of Reclamation (Reclamation) will develop a value engineering (alternatives) report for stabilization/capping of the tailings heap, including:

1. determination of residual acidity and metals content, including uranium, of the tailings heap, and neutralization of residual acidity;
2. shaping and contouring the heap to minimize run-on, percolation, and erosion; and
3. establishment of vegetative cover.

TASK ONE COURSE OF ACTION: Reclamation will develop a value engineering (alternatives) report. An outline of heap leach alternatives which may be included in the report will be prepared and submitted to the on-scene coordinator for review and comments. Also, a list of field activities which will be required prior to completing the evaluation study will be provided and discussed.

Equipment required for supporting field work will be provided by Reclamation from the Provo Projects Office, the Upper Colorado Regional Office in Salt Lake City, Utah, or the Denver Office, depending on the type of field activities that are selected and availability of equipment. Some equipment may need to be rented for field activities. Costs for these items are included in the budget estimate under "equipment". Supplies needed include protective clothing, gloves, decontamination supplies, etc. Other costs include chemical and material laboratory analysis of

samples.

Personnel responsibilities for Task One include:

1. Tom Meunier, Assistant Projects Manager, Provo Projects Office, (PRO-105) will provide general oversight for Task One and make decisions regarding work priorities and schedules.
2. Wayne Rich, Hazardous Waste Staff Chief, Provo Projects Office, (PRO-170) will be responsible for coordination of work assignments and schedules and for development and review of the value engineering (alternatives) report.
3. Clark Whitlock, Hazardous Waste Staff Field Supervisor, Provo Projects Office, (PRO-180) will be responsible for development of the value engineering report and related field activities.
4. Rick Scott, Design Branch Chief, Provo Projects Office, (PRO-220) will assist with development of the value engineering report.
5. Up to 4 Engineering Technicians will be used to perform field activities required prior to completion of the report.
6. Richard Wiltshire, Geotechnical Engineer, Denver Office, (D-3620) will provide input into scoping and assist with report development.

TASK ONE DELIVERABLES: An outline of heap leach alternatives will be provided to EPA for review and comments. A draft value engineering (alternatives) report will be provided for review and comments. Upon receipt of comments from EPA and other participating agencies, a final value engineering (alternatives) report will be provided.

TASK ONE SCHEDULE:

Commence development of value
engineering alternatives

January 10, 1993

Submit heap leach alternatives and
list of required field work

May 15, 1993

Perform field work and provide draft
value engineering (alternatives) report

October 15, 1993

Receipt of review comments from EPA

November 1, 1993

Provide final value engineering report

November 15, 1993

TASK ONE BUDGET: VALUE ENGINEERING REPORT DEVELOPMENT
(January 10 - November 15, 1993)

NAME OF EMPLOYEE	REGULAR HOURS	REGULAR RATE (\$)	PERSONNEL COSTS (\$)
TOM MEUNIER, ASSISTANT PROJECTS MANAGER (PRO-105)	40	66.86	2,674.40
WAYNE RICH, HAZARDOUS WASTE STAFF CHIEF (PRO-170)	60	52.45	3,147.00
CLARK WHITLOCK, HAZARDOUS WASTE STAFF FIELD SUPERVISOR (PRO-180)	100	47.65	4,765.00
RICK SCOTT, DESIGN BRANCH CHIEF (PRO-220)	80	52.39	4,191.20
4 ENGINEERING TECHNICIANS	160	42.54	6,806.40
RICHARD WILTSHIRE, GEOTECHNICAL ENGINEER (D-3620)	60	65.00	3,900.00
TOTAL PERSONNEL COSTS =			25,484.00

	Work Plan Cost
Total Personnel Costs	\$ 25,484.00
Equipment Costs	2,000.00
Supplies	500.00
Other Costs	1,500.00
Total TASK ONE Costs:	\$ 29,484.00

Personnel cost rates may change depending on cost of living adjustments and tenure. Exact hourly rates can be obtained from documentation received in monthly progress reports. Estimates are based on hourly rates which include employee wages, government additives of health and life insurance benefits, retirement plan costs, accident compensation costs, leave additives, Medicare additives, and administrative support.

Leeds Silver Reclamation Site, Leeds, Utah

Work Plan - Value Engineering, Consolidation, and Dewatering

TASK TWO - RESIDUAL MATERIALS CONSOLIDATION

TASK TWO WORK OBJECTIVES: Consolidation of residual materials in assorted tanks onto the heap leach.

TASK TWO COURSE OF ACTION: Reclamation will determine the nature of the residual materials in assorted tanks and make recommendations regarding consolidation/disposal of the materials in the value engineering (alternatives) report provided in Task One; therefor, no work will be included under this task.

Leeds Silver Reclamation Site, Leeds, Utah

Work Plan - Value Engineering, Consolidation, and Dewatering

TASK THREE - DEWATERING OF PONDS

TASK THREE WORK OBJECTIVES: Dewatering of pregnant pond and overflow pond, if warranted.

TASK THREE COURSE OF ACTION: Reclamation will determine the disposition, size, elevations, and other pertinent information regarding the pregnant and overflow ponds and make recommendations regarding dewatering of the ponds in the value engineering (alternatives) report provided in Task One; therefor, no work will be included under this task.

LEEDS SILVER RECLAMATION SITE

I. Heap Leach Alternatives

- A. No Action
- B. Evaluation/No Action
- C. Secure Site

- 1. Fencing (fencing in the past has been stolen)
- 2. Warning signs
- 3. Full time company
- 4. Part time company

- D. Cap in place/cap in place and cover/limit surface in flow/minimum recontouring for surface drainage and area reduction.

I. Cobble or Vegetative Cover

- 1. Clay cap
- 2. HDPE
- 3. Composite cap

II. Cap in Place

- 1. Asphalt
- 2. RCC
- 3. Soil cement
- 4. Shotcrete

Clay cap or Capillary barrier with vegetative cover. Similar to Hecla plan. Run HELP model on cap design. Use different scenarios.

what's this?
relocate what?

- E. Relocate to upper end of asphalt pad and cap or cap and cover.

I. Cobble or Vegetative Cover

- 1. Clay cap
- 2. HDPE
- 3. Composite cap

II. Cap in Place

- 1. Asphalt
- 2. RCC
- 3. Soil cement
- 4. Shotcrete

F. Temporary Surface Control

- 1. Polymer (surfactant)
- 2. Thinner clay cap
- 3. HDPE

G. Relocate

1. Mine shaft
2. Open pit
3. Permitted repository
4. Construct landfill in vicinity
5. To existing tailing piles

2nd best option with cap

best option

H. Encapsulate/solidify

1. Cement/fly ash
2. Asphalt
3. Chemical

I. Curtain Wall/Grout of bentonite or chemical, concrete or etc.

1. Vertical
2. Horizontal

J. Drains

1. Surface
2. Subsurface

Additional alternatives have also been considered. However, due to excessive cost, they do not warrant further study. Included in this category are the following:

A. Detoxification

1. Bio
2. Water
3. Chemical

B. Reprocess

1. In situ
2. At smelter

C. Soil Vitrification

M. Incineration

II. Water Ponds Alternatives

- A. No Action
- B. Evaluate/No action
- C. Secure Site
 - 1. Fencing (fencing in the past has been stolen)
 - 2. Warning signs
 - 3. Full time company
 - 4. Part time company
 - 5.
- D. Treat (Detox) by portable plants, etc. *2nd best option*
 - 1. Breach
 - 2. Use in heap leach alternatives as hydration water
- E. Treat (Detox) and fill pond area with
 - 1. Existing soil (soil in the vicinity)
 - 2. Heap leach materials
- F. Dilute and runoff *- best option*
- G. Evaporate and clean up sediment

Additional alternatives have also been considered. However, due to the small quantity of water involved, they do not warrant further study. Included in this category are the following:

- A. Aerobic biological treatment
- B. Biodegradation
- C. Relocate (any relocation would first require treatment)
 - 1. To mine shafts
 - 2. To permitted repository

III. Required Field Work for Evaluation Study

A. Site Characterization and HASP

B. Surveys - check for existing maps

1. Leach pile topography
2. Surface water ~~evaluations~~ *elevation*
 - a. Ponds
 - b. Seeps from leach, road and ponds
3. Surficial ground water elevations (see subitem C.4. below)
4. Wetlands - spot elevations, limits
5. Well - coordinates and elevations
6. Ore stockpile
7. ~~Ditches/streams~~ thalweg (some distance away from site)
8. Map asphalt cracks
9. Geologic observations as related to pad areas and ponds

C. Exploration

1. Surface (ore piles)
2. Subsurface (auger of leach or test pit by back hoe)
3. Asphalt thickness (away from heap leach pile)
4. Temporary observation wells

D. Sampling program

1. Acidity, ph meter
2. Geiger - Radioactivity
- ~~3. Tanks~~ *(if deemed necessary)*
- ~~4. Ponds~~

E. Identify local source areas for construction materials including availability, location, suitability, and engineering parameters

1. Cobbles
2. Clay *permeabilities*

If any long term monitoring is required, the two following items would also be of value.

- A. Staff gages in ponds (recorder)
- B. Install weather station

Hold off for now.

**PERMIT REVIEW
PRIORITY LIST**

(last revised June 23, 1993)

#	MINE NO.	OPERATOR	Last Corres.	REVIEW DUE OUT
1	M/053/002 Wayne	5-M INCORPORATED Silver Reef Mine Reclamation plan and bid contract being prepared by staff. Soil sampling needs to be done. Plans temporarily suspended pending results from EPA. Met w/EPA onsite 2/2/93. EPA to prepare "Value Engineering Report" and then probably drop out because BLM lands are involved.		Plans on hold. Waiting for EPA
2	M/045/030 Tony	AKZO SALT Timpie Solar Ponds Review of operators response sent 12/22/92 along w/surety estimate and RC forms. AKZO is routing the RC through their legal department.	6/30/92	Await Operator's RC and surety
3	M/047/010 Tony	AMERICAN GILSONITE COMPANY Bonanza Review of operators response sent 12/22/92 along w/surety estimate and RC forms. AGC accepted seed mix 12/4/92. AGC working on surety to be submitted in the near future.	Tony to call on status of surety	Await Operator surety & RC
4	M/023/024 Holland	ASH GROVE CEMENT COMPANY <i>we need surety fr operator</i> County Canyon Tentative approval granted 5/11/93. Published 30-day public notice 5/29/93 in Tribune; 6/7/93 in Eureka Reporter.	2/22/93	Board after public comment period ends - June?
5	M/027/028 Wayne	BARON TRADING COMPANY Spectrum Quarry Previously small mine, now changing to large mine status. Formerly permitted by Sapphire Corp. M/027/003 but retired. BLM approved Notice upon DOGM's acceptance of surety. Letter sent to operator 3/18/93 w/draft reclamation estimate. Also LMO application sent as information in BLM plan and EA is deficient. Letter returned from address BLM gave us. Re-sent to another address and received by Bill Pappas. Mr. Pappas phoned Tony 3/25/93 & told him he was no longer with Baron but still wanted to be copied on all correspondence. BLM & DOGM to each file "Proof of Claim" against bankruptcy. Any monies left from litigation will be divided and each party that filed will get a certain percent.	In Litigation Bankruptcy	Await operator response Still need annual report from operator

8/16/93

Reeds Silver Rec. Site

Comments - HWS

Sounds like the way to go would be to cap the crop in such a manner as to prevent ~~water~~ excessive water accumulation. I'm thinking of something along the lines of ~~what~~ what our Hecla pals have put together. Using a clay cap ~~or~~ below a soil-subsoil planty medium. Could use a capillary barrier too. The HELP ~~model~~ model or USAT-H model could help in this regard. Also shaping the heap to prevent drainage into it and enhance drainage off of it would help. This would be the cheapest alternative.

The ~~best~~ alternative would be to landfill it in the proximity of the site. The question is where.

In place encapsulation probably best alternative